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Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for image analysis, the method comprising:

receiving a first image;

transforming the first image into a feature space;

selecting at least one region of interest (ROI) at a pixel level of processing;

extracting two or more features from the ROI at a pixel level of processing;

selecting at least one non-ROI at a pixel level of processing;

extracting two or more features from the non-ROI at a pixel level of processing;

ranking, in a combinatorial manner, the extracted features from the ROI and non-ROI based on feature performance for successful detection of a selected ROI at a pixel level of processing;

recording the ranked extracted features;

selecting a classification algorithm;

running the classification algorithm to classify the first image or a second image into one or more ROIs at a pixel level of processing, wherein the first or second image selected for classification is a classified image;

recording one or more of the ROIs based on pixel level processing; and

outputting analysis results to a computing device user, output device or a computer database.

2. (Currently Amended) The method of claim 1, wherein selecting at least one ROI comprises selecting one or more pixels from the image; and wherein the step of selecting at least one non-ROI comprises selecting one or more pixels from the image.

3. (Previously Presented) The method of claim 1, further comprising transmitting the recorded ROIs at a pixel level of processing for laser capture microdissection.

4. (Previously Presented) The method of claim 1, further comprising selecting a second level of processing.

5. (Previously Presented) The method of claim 4, wherein the second level of processing is subimage level processing.

6. (Previously Presented) The method of claim 5, further comprising the steps of:

selecting at least one polygonal ROI from the classified image at a subimage level of processing;

extracting one or more features from the polygonal ROI at a subimage level of processing;

selecting at least one polygonal non-ROI at a subimage level of processing;

extracting one or more features from the non-ROI at a subimage level of processing;

ranking the extracted features based on feature performance for successful detection of a selected ROI;

recording the ranked features based on subimage processing;

selecting a classification algorithm;

running the classification algorithm to classify the image into ROIs based on subimage level processing; and

recording the ROIs based on subimage level processing.

7. (Previously Presented) The method of claim 6, further comprising transmitting the recorded regions of interest based on subimage level processing for laser capture microdissection.

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8. (Previously Presented) The method of claim 4, wherein the second level of processing is object processing.

9. (Previously Presented) The method of claim 8, further comprising:

selecting at least one polygonal ROI from the classified image at an object level of processing.

10. (Previously Presented) The method of claim 9, further comprising:

recording the at least one polygonal ROI at an object level of processing; and

transmitting the at least one polygonal region of interest based on object level processing for laser capture microdissection.

11. (Previously Presented) The method of claim 9, further comprising:

extracting one or more features from the ROI at an object level of processing;

selecting at least one polygonal non-ROI at an object level of processing;

extracting one or more features from the non-ROI at an object level of processing;

ranking the extracted features based on feature performance for successful detection of a selected ROI;

recording the ranked features based on object level processing;

selecting a classification algorithm;

running the classification algorithm to classify the image into ROIs based on object level processing; and

recording the ROIs based on object level processing.

12. (Previously Presented) The method of claim 11, further comprising transmitting the ROIs based on object level processing for laser capture microdissection.

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13. (Previously Presented) The method of claim 4, further comprising selecting a third level of processing.

14. (Previously Presented) The method of claim 13, wherein the third level of processing is object level processing.

15. (Previously Presented) The method of claim 14, further comprising:

selecting at least one polygonal ROI from the classified image at an object level of processing.

16. (Previously Presented) The method of claim 15, further comprising:

recording the at least one polygonal ROI at an object level of processing;

transmitting the at least one polygonal ROIs based on object level processing for laser capture microdissection.

17. (Previously Presented) The method of claim 15, further comprising:

extracting one or more features from the ROI at an object level of processing;

selecting at least one polygonal non-ROI at an object level of processing;

extracting one or more features from the non-ROI at the object level of processing;

ranking the extracted features based on feature performance for successful detection of a selected ROI;

recording the ranked extracted features based on object level processing;

selecting a classification algorithm;

running the classification algorithm to classify the image into ROIs based on object level processing; and

recording the ROIs based on object level processing.

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18. (Previously Presented) The method of claim 17, further comprising transmitting the regions of interest based on object level processing for laser capture microdissection.

19. (Withdrawn) A computer method for image analysis, comprising the steps of:

receiving a first image;

transforming the first image into a feature space;

selecting a level of abstraction;

selecting a database containing parameters based on the selected level of abstraction;

classifying the first image into regions of interest employing the parameters from the database based on the selected level of abstraction;

updating the parameters of the database for the level of abstraction with data from the first image;

receiving a second image;

transforming the second image into a feature space;

classifying the second image into regions of interest employing the updated parameters from the database based on the selected level of abstraction;

updating the parameters of the database with data from the second image.

20. (Withdrawn) The computer method for image analysis of claim 19 wherein the step of selecting a level of abstraction includes selecting pixel processing.

21. (Withdrawn) The computer method for image analysis of claim 20 further including the step of transmitting the regions of interest obtained from pixel processing for laser capture microdissection.

22. (Withdrawn) The computer method for image analysis of claim 19 wherein the step of selecting a level of abstraction includes selecting subimage processing.

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23. (Withdrawn) The computer method for image analysis of claim 22 wherein the step of classifying the first image includes classifying the first image into regions of interest employing parameters from the database for pixel processing and classifying the first image into regions of interest employing parameters from the database for subimage processing; and wherein the step of classifying the second image includes classifying the second image into regions of interest employing parameters from the database for pixel processing and classifying the second image into regions of interest employing parameters from the database for subimage processing.

24. (Withdrawn) The computer method for image analysis of claim 23 further including the step of transmitting the regions of interest obtained from subimage processing for laser capture microdissection.

25. (Withdrawn) The computer method for image analysis of claim 19 wherein the step of selecting a level of abstraction includes selecting object processing.

26. (Withdrawn) The computer method for image analysis of claim 25 wherein the step of classifying the first image includes classifying the first image into regions of interest employing parameters from the database for pixel processing and classifying the first image into regions of interest employing parameters from the database for subimage processing and classifying the first image into regions of interest employing parameters from the database for object processing; and wherein the step of classifying the second image includes classifying the second image into regions of interest employing parameters from the database for pixel processing and classifying the second image into regions of interest employing parameters from the database for subimage processing and classifying the second image into regions of interest employing parameters from the database for object processing.

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27. (Withdrawn) The computer method for image analysis of claim 26 further including the step of transmitting the regions of interest obtained from object processing for laser capture microdissection.

28. (Withdrawn) The computer method for image analysis of claim 25 wherein the step of classifying the first image includes classifying the first image into regions of interest employing parameters from the database for pixel processing and classifying the first image into regions of interest employing parameters from the database for object processing; and wherein the step of classifying the second image includes classifying the second image into regions of interest employing parameters from the database for pixel processing and classifying the second image into regions of interest employing parameters from the database for object processing.

29. (Withdrawn) The computer method for image analysis of claim 28 further including the step of transmitting the regions of interest obtained from object processing for laser capture microdissection

30. (Previously Presented) The method of claim 6, wherein the further steps are performed prior to outputting the analysis results.

31. (Previously Presented) The method of claim 6, wherein the further steps are performed after outputting the analysis results, and wherein the method further comprises outputting the analysis results after performing the further steps.

32. (Previously Presented) The method of claim 11, wherein the further steps are performed prior to outputting the analysis results.

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33. (Previously Presented) The method of claim 11, wherein the further steps are performed after outputting the analysis results, and wherein the method further comprises outputting the analysis results after performing the further steps.

34. (Previously Presented) The method of claim 17, wherein the further steps are performed prior to outputting the analysis results.

35. (Previously Presented) The method of claim 17, wherein the further steps are performed after outputting the analysis results, and wherein the method further comprises outputting the analysis results after performing the further steps.

36. (Previously Presented) The method of claim 1, wherein ranking comprises first iteratively ordering each individual feature for a given ROI or non-ROI according to ability of the single feature to detect an ROI and then iteratively ordering pairs of features for a given ROI or non-ROI according to ability of the pair of features to detect an ROI.